

RESPONSE TO OFFICE ACTION
Serial No. 09/765,830
Page 2 of 10IN THE CLAIMS

1. (Currently Amended) A robot apparatus mounted on a robot hub, the robot apparatus comprising:
 - a main robot link centrally mounted to the robot hub;
 - a first robot extension arm rotatably mounted to a first end of the main robot link at a first axis;
 - a second robot extension arm rotatably mounted to a second end of the main robot link at a second axis, the first end of the main robot link being fixed in orientation relative to the second end of the main robot link;
 - a first robot blade being mounted to the first robot extension arm;
 - a second robot blade being mounted to the second robot extension arm;
 - a hub motor providing controllable rotational motion of the main robot link about the robot hub;
 - a first extension motor configured to independently provide controllable simultaneous extension or retraction of the first robot blade and rotation of the first robot blade about the first axis; and
 - a second extension motor configured to independently provide controllable simultaneous extension or retraction of the second robot blade and rotation of the second robot blade about the second axis.
2. (Original) The robot apparatus of claim 1, wherein the hub motor includes a stepper motor.
- 3-4. (Cancelled)
5. (Previously Presented) The robot apparatus of claim 1, wherein the main robot link is a unitary structure.

274281

PAGE 3/11 * RCVD AT 6/11/2004 1:16:05 PM [Eastern Daylight Time] * SVR:USPTO-EXRF-1/0 * DNIS:8729306 * CSID:732 530 9808 * DURATION (mm:ss):03:26

RESPONSE TO OFFICE ACTION
Serial No. 09/765,830
Page 3 of 10

6. (Original) The robot apparatus of claim 1, wherein each of the plurality of hub motor, first extension motor, and second extension motor are independently controllable.

7. (Original) The robot apparatus of claim 1, wherein the first robot blade and the second robot blade are each configured to be inserted in a cell.

8. (Original) The robot apparatus of claim 1, further comprising a first pulley arrangement that transfers output motion from the first extension motor to simultaneous angular rotation of the first extension arm and angular rotation of the first robot blade.

9. (Original) The robot apparatus of claim 8, wherein the first pulley arrangement provides for angular rotation of the first extension arm that occurs at a fixed rate compared to the rate of the angular rotation of the first robot blade.

10. (Original) The robot apparatus of claim 8, wherein the first pulley arrangement provides for angular rotation of the first extension arm at a rate that is twice the rate of the angular rotation of the first robot blade.

11. (Currently Amended) A robot apparatus mounted on a robot hub, the robot apparatus comprising:

a main robot link mounted the robot hub between a first end and a second end of the main robot link, the first end having a fixed orientation relative to the second end;

a hub motor capable of providing controllable rotational motion to the main robot link about the robot hub;

a first extension hub being rotatably mounted to a first side of the main robot link;

a second extension hub being rotatably mounted to a second side of the main robot link, the second side being on an opposed side of the robot link from the first side;

a first extension arm being mounted to the first extension hub;

a second extension arm being mounted to the second extension hub;

274281

PAGE 4/11 * RCVD AT 6/11/2004 1:16:05 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-1/0 * DNIS:8729306 * CSID:732 530 9808 * DURATION (mm:ss):03:26

RESPONSE TO OFFICE ACTION
Serial No. 09/765,830
Page 4 of 10

a first robot blade hub being rotatably mounted to a distal location of the first robot arm from the first extension hub;

a second robot blade hub being rotatably mounted to a distal location of the second robot arm from the second extension hub;

a first robot blade mounted to the first robot blade hub;

a second robot blade mounted to the second robot blade hub;

a first extension motor configured to independently provide a first controllable simultaneous extension or a first controllable simultaneous retraction of the first robot blade about the first extension hub and rotation of the first robot blade about the first robot blade hub; and

a second extension motor configured to independently provide a second controllable simultaneous extension or a second controllable simultaneous retraction of the second robot blade about the second extension hub and rotation of the second robot blade about the second robot blade hub.

12. (Original) The robot apparatus of claim 11, wherein the second controllable simultaneous extension or the second controllable simultaneous retraction occurs respectively independently of the first controllable simultaneous extension or the first controllable simultaneous retraction

13. (Original) The robot apparatus of claim 11, wherein the second controllable simultaneous extension or the second controllable simultaneous retraction occurs respectively dependently of said first controllable simultaneous retraction or the first controllable simultaneous extension.

14. (Original) The robot apparatus of claim 11, wherein the robot apparatus is designed to insert the first robot blade or the second robot blade sequentially into a single process cell.

274281

RESPONSE TO OFFICE ACTION
Serial No. 09/765,830
Page 5 of 10

15. (Original) The robot apparatus of claim 11, wherein the hub motor includes a stepper motor.

16-17. (Cancelled)

18. (Previously Presented) The robot apparatus of claim 11, wherein the main robot link is a unitary structure.

19. (Original) The robot apparatus of claim 11, wherein each of the plurality of hub motor, first extension motor, and second extension motor are independently controllable.

20. (Original) The robot apparatus of claim 11, wherein the first robot blade and the second robot blade are each configured to be inserted in a cell.

21. (Original) The robot apparatus of claim 11, further comprising a first pulley arrangement that transfers output motion from the first extension motor to simultaneous angular rotation of the first extension arm and angular rotation of the second robot blade.

22. (Original) The robot apparatus of claim 21, wherein the first pulley arrangement provides for angular rotation of the first extension arm that occurs at a fixed rate compared to the rate of the angular rotation of the first robot blade.

23. (Original) The robot apparatus of claim 21, wherein the first pulley arrangement provides for angular rotation of the first extension arm at a rate that is twice the rate of the angular rotation of the first robot blade.

274281

PAGE 6/11 * RCVD AT 6/11/2004 1:16:05 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-1/0 * DNIS:8729306 * CSID:732 530 9808 * DURATION (mm:ss):03:26

RESPONSE TO OFFICE ACTION
Serial No. 09/765,830
Page 6 of 10

24. (Currently Amended) A method of providing a robot motion to a dual-bladed robot including a main robot linkage coupled to a first extension arm at a first axis, a first robot blade coupled to the first extension arm at a second axis, a second extension arm coupled to the main linkage opposite the first extension arm; and a second robot blade coupled to the second extension arm at a third axis, the method comprising:

(a) rotating the main robot link so the first extension arm and the first robot blade are in an initial aligned position with a first process cell, wherein the first extension arm and the first robot blade remain in their retracted positions;

(b) continuing rotation of the main robot link to insert the first robot blade in the first process cell, wherein the first extension arm and the first robot blade simultaneously extend into respective extended positions, wherein the steps of rotating and extending or retracting the first robot blade are performed by a single extension motor.

25. (Original) The method of claim 24, wherein an opening of the first process cell is aligned with the dual bladed robot.

26. (Original) The method of claim 24, wherein an opening of the first process cell is offset from the dual bladed robot.

27. (Previously Presented) The method of claim 24, further comprising inserting the first robot blade in the first process cell after the main robot link, the first extension arm, and the first robot blade are fully rotated into their respective extended positions with the main robot link aligned with the first process cell.

28. (Previously Presented) The method of claim 24, wherein: during step (a) the rotation of the main robot link, the second extension arm and the second robot blade are in an initial aligned position with a second process cell, during step (a) both the second extension arm and the second robot blade remain in their retracted positions; and during step (b) the second extension arm and the second robot blade simultaneously extend into their respective extended positions.

274281

PAGE 7/11 * RCVD AT 6/11/2004 1:16:05 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-1/0 * DNIS:8729306 * CSID:732 530 9808 * DURATION (mm:ss):03:26

RESPONSE TO OFFICE ACTION
Serial No. 09/765,830
Page 7 of 10

29. (Previously Presented) The method of claim 24, further comprising inserting the second robot blade into the second process cell after the main robot link, the second extension arm, and the second robot blade are fully rotated into their respective extended positions when the main robot link is aligned with the second process cell.

29. (Previously Presented) The method of claim 24, further comprising inserting the second robot blade into the second process cell after the main robot link, the second extension arm, and the second robot blade are fully rotated into their respective extended positions when the main robot link is aligned with the second process cell.

274281

PAGE 8/11 * RCVD AT 6/11/2004 1:16:05 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-1/0 * DNIS:8729306 * CSID:732 530 9808 * DURATION (mm:ss):03:26